IN THE CLAIMS:

Please cancel claims 155 and 170 without prejudice or disclaimer and add new claims 433-470 as shown below.

1-154. (Previously cancelled)

155. (Currently cancelled)

156-169. (Previously cancelled)

170. (Currently cancelled)

171-432. (Previously cancelled)

433. (New) A satellite probe comprising:

a particle having attached thereto oligonucleotides, the oligonucleotides having a sequence wherein at least a portion of the sequence of the oligonucleotides is complementary to at least a portion of a sequence of a nucleic acid target; and

probe oligonucleotides hybridized to the oligonucleotides attached to the nanoparticles, the probe oligonucleotides having a sequence wherein at least a portion of the sequence of the probe oligonucleotides is complementary to at least a portion of the sequence of the oligonucleotides attached to the particles and identical to at least a portion of the sequence of the nucleic acid target; and

a reporter attached each probe oligonucleotide.

434. (New) The satellite probe of claim 433 wherein the particles are magnetic.

435. (New) The satellite probe of claim 433 wherein the reporter molecule is a fluorescent molecule.

436. (New) The satellite probe of claim 433 wherein the reporter molecule is a dye molecule.

437. (New) The satellite probe of claim 433 wherein the reporter molecule is a redox-active molecule.

438. (New) The satellite probe of claim 433 wherein the particles are modified with a material capable of quenching fluorescence of fluorescent molecules attached to the probe oligonucleotides.

439. (New) The satellite probe of claim 433 wherein the material is a dye.

440. (New) The satellite probe of claim 437 wherein the particles are modified with dye molecules having optical properties that are distinct from the reporter molecule.

441. (New) The satellite probe of claim 433 wherein the redox-active molecule is a ferrocene derivative.

442. (New) The satellite probe of claim 433 wherein the particles are nanoparticles.

443. (New) The satellite probe of Claim 442 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of at least 10 picomoles/cm^2.

444. (New) The satellite probe of Claim 443 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density of at least 15 picomoles/cm^2.

445. (New) The satellite probe of Claim 444 wherein the oligonucleotides are present on surface of the nanoparticles at a surface density from about 15 picomoles/cm^2 to about 40 picomoles/cm^2.

446. (New) The satellite probe of Claim 442 wherein the nanoparticles are metal nanoparticles or semiconductor nanoparticles.

447. (New) The satellite probe of Claim 442 wherein the nanoparticles are gold nanoparticles.

448. (New) The satellite probe of Claim 433 wherein at least some of the oligonucleotides on each type of nanoparticles comprise at least one type of recognition oligonucleotides, each type of recognition oligonucleotides comprising a spacer portion and a recognition portion, the spacer portion being designed so that it is bound to the nanoparticles, the recognition portion having a sequence complementary to at least one portion of a sequence of a nucleic acid target.

449. (New) The satellite probe of Claim 448 wherein the spacer portion has a moiety covalently bound to it, the moiety comprising a functional group through which the spacer portion is bound to the nanoparticles.

450. (New) The satellite probe of Claim 448 wherein the spacer portion comprises at least about 10 nucleotides.

451. (New) The satellite probe of Claim 450 wherein the spacer portion comprises from about 10 to about 30 nucleotides.

452. (New) The satellite probe of Claim 448 wherein the bases of the nucleotides of the spacer portion are all adenines, all thymines, all cytosines, all uracils or all guanines.

453. (New) The satellite probe of Claim 433 wherein at least some the oligonucleotides on each type of nanoparticles comprise at least one type of recognition oligonucleotides, each type of recognition oligonucleotides comprising a sequence complementary to at least one portion of a sequence of a nucleic acid target; and a type of diluent oligonucleotide.

454. (New) The satellite probe of Claim 453 wherein, each type of recognition oligonucleotides comprises a spacer portion and a recognition portion, the spacer portion being designed so that it is bound to the nanoparticles, the recognition portion having a sequence

complementary to at least one portion of a sequence of a nucleic acid target or another oligonucleotide.

455. (New) The satellite probe of Claim 454 wherein the spacer portion has a moiety covalently bound to it, the moiety comprising a functional group through which the spacer portion is bound to the nanoparticles.

456. (New) The satellite probe of Claim 454 wherein the spacer portion comprises at least about 10 nucleotides.

457. (New) The satellite probe of Claim 456 wherein the spacer portion comprises from about 10 to about 30 nucleotides.

458. (New) The satellite probe of Claim 454 wherein the bases of the nucleotides of the spacer portion are all adenines, all thymines, all cytosines, all uracils or all guanines.

459. (New) The satellite probe of Claim 454 wherein the diluent oligonucleotides contain about the same number of nucleotides as are contained in the spacer portions of the recognition oligonucleotides.

460. (New) The satellite probe of Claim 459 wherein the sequence of the diluent oligonucleotides is the same as that of the spacer portions of the recognition oligonucleotides.

461. (New) The satellite probe of Claim 433 wherein the oligonucleotides are attached to the nanoparticles in an aging processing comprising contacting the oligonucleotides with the nanoparticle in an aqueous solution for a period of time sufficient to allow some of the oligonucleotides to bind to the nanoparticle; adding at least one salt to the aqueous solution to form an aqueous salt solution; and contacting the oligonucleotides and nanoparticle in an aqueous salt solution for an additional period of time sufficient to enable additional oligonucleotides to bind to the nanoparticle.

462. (New) The satellite probe of Claim 461 wherein the oligonucleotides and nanoparticles are contacted in aqueous solution for about 12 to about 24 hours.

463. (New) The satellite probe of Claim 461 wherein salt is added to the aqueous solution to form the aqueous salt solution which is buffered at pH 7.0 and which contains about 0.1 M NaCl.

464. (New) The satellite probe of Claim 461 wherein the oligonucleotides and nanoparticles are contacted in the aqueous salt solution for an additional 40 hours to increase the density of oligonucleotides bound to the nanoparticles.

465. (New) The satellite probe of Claim 463 wherein the salt is added to the aqueous solution in a single addition.

466. (New) The satellite probe of Claim 463 wherein the salt is added gradually to the aqueous solution over time.

467. (New) The satellite probe of Claim 463 wherein the salt is selected from the group consisting of sodium chloride, magnesium chloride, potassium chloride, ammonium chloride, sodium acetate, ammonium acetate, a combination of two or more of these salts, one of these salts in a phosphate buffer, and a combination of two or more these salts in a phosphate buffer.

468. (New) The satellite probe of Claim 467 wherein the salt is sodium chloride in a phosphate buffer.

469. (New) The satellite probe of Claim 433 wherein the oligonucleotides are bound to the nanoparticles through sulfur linkages.

470. (New) A kit comprising the satellite probe of claim 433.